adaptec

AAA™131CA PCI-to-Wide UltraSCSI Array Adapter

Delivers up to twofold performance increase for Windows NT® PC Workstations

Product Highlights

- **RAID coprocessor manages 16-MByte data cache to accelerate performance**
- **Supports single disk drive, RAID 0 (data striping) and RAID 1 (mirroring) configurations**
- **Makes installation quick and easy with Adaptec's wizard-based Array*Config*™CA software**
- **Simplifies storage management with easy-to-use Adaptec® CI/O™ Workstation Array Management software**

Overview

High-end applications demand high-performance computing. Traditionally, users have had to rely on expensive, proprietary systems to get that performance. Today, however, users are increasingly migrating to PC workstations using the Intel® Pentium™ II microprocessor and the Microsoft® Windows NT Workstation operating system. But native Windows NT striping and/or increased system memory for larger file caching have not met the performance needs of these users.

Adaptec has taken a leadership role in performance improvement, increasing system performance for PC workstation-based CAD, multimedia and other disk I/O-bound applications. The AAA-131CA array adapter caches reads and writes while intelligently striping data on two or more drives for maximum I/O subsystem performance. For applications that require fault tolerance, RAID 1 (mirroring) support is included. An easy-to-use GUI-based interface saves time and ensures proper installation.

Key Benefits

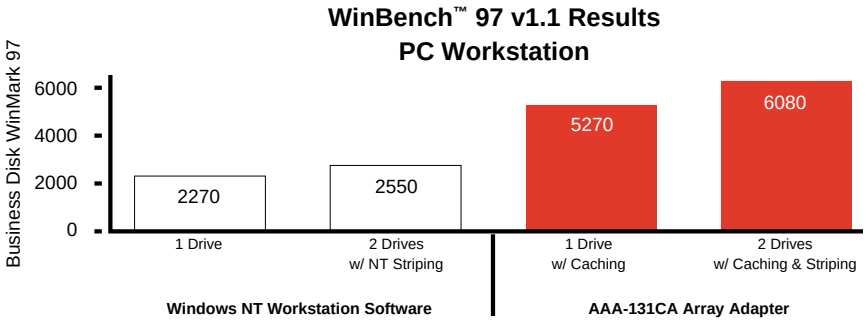
Up to twofold performance increase

The AAA-131CA array adapter turns a Windows NT PC workstation into a powerful performance engine. Advanced caching technology delivers unrivaled productivity gains—up to a twofold performance increase for specific applications.

The AAA-131CA array adapter uses a RAID coprocessor to manage 16-MBytes of memory for caching data. Caching algorithms pre-fetch data, performing look-ahead and demand reads that anticipate requests for data sets. Write data blocks are stored in cache, accelerating performance and freeing the CPU for background tasks, further boosting productivity.

Cost-effective upgrade

A PC workstation requires just one modest addition to unleash its potential—AAA-131CA array adapter with a caching RAID coprocessor. The AAA-131CA array adapter delivers a price-performance gain unequaled in the industry.



The AAA-131CA array adapter's caching technology (single-drive and RAID 0 striping) delivers a dramatic leap in performance over embedded Windows NT single drive or data striping alone.

Tune your AAA-131CA array adapter for maximum storage acceleration.

Visualize your caching acceleration in "real time".

Easy to use

Simply plug the AAA-131CA array adapter into any available PCI slot. Next, use the Array*Config*CA's Installation Wizard to configure your PC workstation's disk drives for caching RAID to maximize performance. Then install the Array1000™ Windows NT Workstation driver and CI/O Workstation Array Management software during Windows NT Workstation setup. It's that easy.

Array management

Adaptec CI/O Workstation Array Management software takes the complexity out of array management. Built-in performance profiler, cache performance optimization, and performance monitoring tools allow you to tune your PC workstation array's performance settings for your particular application's requirements.

Tuning performance

Select your array and click on "Optimize Performance" to open a caching parameters box. Then set your read and write cache settings for maximum performance. Click on "Monitor Performance" to launch the CI/O profiler.

Maximum performance

With your AAA-131CA array adapter configured for striping, caching dramatically accelerates your PC workstation's performance. The AAA-131CA array adapter also supports caching single-drive configurations, enabling an even more cost-effective performance upgrade path.

Caching (read and write)

A factory-installed 16-MByte SIMM memory module accelerates storage performance with read (look-ahead and demand) and write (through and back) caching algorithms.

Bootable array support

With your AAA-131CA array adapter, PC workstations can be set up to boot from a disk array. This means the Windows NT operating system itself can boot and operate fast. Or, choose the RAID 1 (mirroring) option to protect your operating system files from drive failures.

S.M.A.R.T. drive failure prediction

Drives equipped with Self-Monitoring, Analysis and Reporting Technology (S.M.A.R.T.) report predicted failures to Adaptec CI/O Workstation Array Management software, permitting you to replace a drive before it fails.

Array configuration on disk

The AAA-131CA array adapter supports instant "power-off" replacement of a failed array adapter without a time consuming restore from backup.

Enhanced data availability

The AAA-131CA array adapter supports RAID 1, which mirrors data, providing full data redundancy. It also delivers more robust fault-tolerant features than operating system RAID software, offering around-the-clock data recovery from drive failures. The mirroring option has the following built-in features:

Warm Swap

Permits the removal of drives that are not hot-swappable, but are in removable canisters (warm-swap trays).

Hot Swap

Drives in hot-swap enclosures and trays are easily removed during PC workstation operation without interrupting system availability.

Hot Spare

The AAA-131CA array adapter takes the crisis out of drive failure by supporting hot spares. The spare stands by to automatically take over for a failed drive without user intervention. No special hot-swap enclosure or trays are required.

Feature Summary

	Adaptec Array Adapter Model: AAA-131CA	
	Performance Mode Striping (RAID 0)*	*Data Protection Mode Mirroring (RAID 1)*
Maximum Performance	X	
Caching (read and write)	X	
Bootable Array Support	X	X
S.M.A.R.T. Drive Failure Prediction	X	X
Array Configuration on Disk	X	X
Enhanced Data Availability:		
Warm Swap		X
Hot Swap		X
Hot Spare		X
Dynamic Sector Repairing		X

**Single-disk configuration supported in performance mode.*

Dynamic Sector Repairing

The AAA-131CA array adapter protects against soft media errors by repairing damaged disk sectors on-the-fly. If data cannot be retrieved from a damaged sector, the array adapter recovers automatically and transparently by assigning the data block to a spare sector on the disk. Access is uninterrupted and no data is lost.

Broad compatibility

The AAA-131CA array adapter supports Wide UltraSCSI and Fast/Wide SCSI drives and other SCSI devices such as scanners and CD-Rs from major vendors.

Extending compatibility and legacy device support provides more choices in systems and peripherals while protecting company hardware and software investments. By including both 50-pin and 68-pin internal connectors with automatic termination, SCSI converter hassles are reduced.

Adaptec quality and reliability

The AAA-131CA array adapter delivers the same high standard of quality and reliability that has made Adaptec the market leader in I/O solutions.

The AAA-131CA array adapter has passed comprehensive functional and mechanical inspections and tests in three separate laboratories: the Adaptec Functional Test Lab, the Adaptec Product Test Lab and the Adaptec Compatibility Test Lab.

Adaptec's manufacturing facility has earned ISO-9002 international certification, which ensures compliance to a high level of quality in product design and production. Trusted for quality and reliability, Adaptec products are incorporated into the products of virtually all major computer and peripheral manufacturers.

AAA™131CA PCI-to-Wide UltraSCSI Array Adapter

Adaptec, Inc.
691 South Milpitas Boulevard
Milpitas, California 95035
Tel: (408) 945-8600
Fax: (408) 262-2533

Adaptec Europe - Belgium
Tel: (32) 2-352-34-11
Fax: (32) 2-352-34-00

Adaptec Japan - Tokyo
Tel: (81) 3-5365-6700
Fax: (81) 3-5365-6950

Adaptec Singapore
Tel: (65) 278-7300
Fax: (65) 273-0163

Literature:
1-800-934-2766 (USA and Canada)
or (510) 732-3829

Pre-Sales Support:
1-800-442-7274 (USA and Canada)
or (408) 957-7274

World Wide Web:
http://www.adaptec.com

Internet ftp server: ftp.adaptec.com
Adaptec USA Bulletin Board
Service (BBS): (408) 945-7727
(up to 28,800 baud, using 8 bits,
1 stop bit, no parity)

adaptec®
We move the information that *moves* your world.™

RAB
Member RAID Advisory Board

Copyright 1997 Adaptec, Inc. All rights reserved. Adaptec, the Adaptec logo, AAA, Array1000, Array*Config* and CI/O are trademarks of Adaptec, Inc., which may be registered in some jurisdictions. Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation used under license. Intel and Pentium are registered trademarks of Intel Corporation.
All other trademarks used are owned by their respective owners.

P/N 980356-011 10/97 Printed in U.S.A.

Complete Kit Contents

- AAA-131CA PCI-to-Wide UltraSCSI array adapter with 16-MByte SIMM
- One 68-pin, 5-position internal cable with active termination
- One 50-pin, 5-position internal cable with active termination
- Adaptec Array*Config*CA initial boot array Installation Wizard software
- Array1000CA Family Manager Set software for Windows NT Workstation 3.51 and 4.0
- Adaptec CI/O Workstation Array Management software
- AAA-131CA user documentation set

Technical Specifications

Computer Bus:	32-bit PCI Local Bus
Interface Protocol:	Bus master DMA
Host Bust Data Transfer Rate:	Up to 40-MByte/sec burst rate
Device Protocol:	SCSI Ultra, Fast, and Wide (8- and 16-bit) 20 MHz
Advanced SCSI Features:	SCSI PhaseEngine® coprocessor Auto-termination 255 simultaneous commands Scatter/gather Tagged command queuing Disconnect/reconnect
Advanced Hardware Features:	Both 50- and 68-pin internal connectors 68-pin external connector (internal-to-external converter available) Flash BIOS
Advanced Caching Features:	Read Cache – Demand and Look Ahead Write Cache – Write-back and Write-through
Electrical Drivers:	Single-ended and active
PCI Bus:	32-bit, 33 MHz
SCSI Channels:	Independent PCI UltraSCSI channels bridged to system PCI bus
Device Support:	Up to 15 disk/non-disk devices
RAID Technology:	Data striping (RAID 0) for performance Mirroring (RAID 1) for fault tolerance • Warm Swap Drive Support • Hot Swap Drive Support • Hot Spare Drive Support • Dynamic Sector Repairing
Array Configuration Features:	Installation Wizard Bootable Arrays

Recommended Minimum System Requirements

- PCI-based 166 MHz Pentium, or equivalent, motherboard with PCI-PCI bridge support
- One or more SCSI devices
- 64-MBytes of system memory
- Windows NT Workstation 3.51 or 4.0

Recommended Applications

- High *throughput* operations, such as CAD/CAM, video editing, imaging, publishing, and multimedia applications
- High *I/O* operations, such as financial, software compiling or database applications

Physical and Environmental Specifications

Dimensions:	6.93 inches (17.602 cm) by 4.2 inches (10.668 cm)
Operation Temperature:	5°C to 55°C
Storage Temperature:	-60°C to 55°C
Humidity (Operating):	20% to 90%, non-condensing
Power Requirements:	5V ± 5%